

REMARKS

Reconsideration and allowance of this application are respectfully requested in view of the above Amendment and the discussion below.

Applicants invention provides an improved reliability of a power supply unit of a micro computer wherein output voltage of a regulator is detected and, as a result, an output of another regulator having a lower voltage is stopped if a preset voltage of the first regulator is less than a preset value.

Claims 1-4 have been rejected under 35 U.S.C. §102 as anticipated by Suzuki (11-265225) based on the best understanding of the claim language. Likewise, claims 1-4 were rejected under 35 U.S.C. §102 as anticipated by Mori (U.S. Patent No.: 5,216,353) and McKenzie (U.S. Patent No.: 5,336,985) also due to the best understanding of the claims.

Prior to discussing the references and the distinguishing features of the claims, Applicants will address the rejections under 35 U.S.C. §112 and the objections to the drawings and the specification.

Claims 1-19 have been rejected under 35 U.S.C. §112, second paragraph as being indefinite with respect to the items listed at section 8 on pages 5-7 of the patent Office Action. In response to this rejection, Applicants have clarified the relationship between the "first, second and third regulators which resulted from a difference in labeling the original specification and the claims". Claim 1 and an embodiment described in the specification is consistent with the claimed first regulator being the regulator 3 and the second regulator being the regulator 4 as shown in Figure 1. Additionally, the voltage detecting means in claim 1 is the voltage detecting mean 6, wherein the output D6 of the voltage detecting means 6 stops the regulator 4. Claims 5 and 6 refer to 3 regulators (2, 3, 4).

In order to eliminate any confusion in our labeling, the specification has been amended to delete any reference to first, second or third regulator, but merely identifies those regulators by their number as shown in Figure 1.

Additionally, Applicants are submitting a proposal for drawing changes which labels the boxes in Figure 1. Applicants also submit that while regulator 3 is positioned after regulator, this regulator 3 does provide a fixed voltage (5 volts) as described in the specification which is ultimately a regulation of the output of the battery 1. The regulator 4 outputs a voltage of 3.3 volts which is lower than the output of the regulator 3 (5 volts). This is described in the specification.

Other changes to the specification have been made in order to address the Examiner's objections without adding any new matter and without changing the nature of the invention.

With respect to the rejection of the claims themselves, each of the objected to claims have been amended to provide a proper antecedent basis and to correct grammar.

Concerning the objection to page 20, lines 3 and 4 as misdescriptive, Applicants have corrected the error on page 22 by referring to the controller 20 having the switching device 21 of regulator 2 being decided on detected signals D5 output from detector 5 instead of the language D6 output from detector 6. The specification and the drawings of Figure 2 clearly support this reading and the change is made in accordance with the Examiner's requirement.

With respect to the rejections under 35 U.S.C. §102, it is submitted that the specification and the drawings clearly support the claim which have been amended under 35 U.S.C. §112. Therefore, Applicants submit that claims 1-4 define subject matter not shown by either of the references to Toshitatsu '225, Mori '353 or McKenzie '985.

The reference to Toshitatsu provides a method for voltage conversion using a regulator, but with no preventative measures against latch-up. When two voltages are fed into one apparatus they may sometimes reverse each other in the relative magnitude of voltages. This magnitude reversion causes problems with isolation in the apparatus due to voltage reception developing into a latch-up problem as discussed at paragraph 0006 of the present application.

In contrast to the reference, the present invention provides a voltage detection means which sends an OFF signal when the output voltage of the regulator 3 decreases down to a predetermined set voltage in order to command the regulator 4 to stop outputting its voltage when the OFF signal is received. This provides an apparatus for preventing reversal in the apparatus and particularly in the micro computer caused from magnitude reversal between the two voltages fed into the micro computer and therefore eliminates latch-up problems as discussed at paragraph 0091 of the present application.

The reference to Mori has a technique using a switching regulator 32 and a linear regulator 34 wherein the output voltage of the switching regulator is designed to be variable. This reference however does not describe or suggest the technique of the presently claimed invention wherein the voltage detecting means is provided to output an OFF signal when the output voltage of the regulator 3 decreases to a predetermined voltage and then commanding the regulator 4 to stop outputting of voltage on the occurrence of such OFF signal. The present invention thus provides a solution to a problem which is not addressed in the reference to Mori.

The reference to McKenzie generates a voltage V_{01} through an inductor 26 and a voltage V_{02} produced on a center tap 32. Once again there is no description in McKenzie concerning the technique of the present invention with the voltage detecting means to output the OFF signal when the voltage of the regulator 3 decreases to a predetermined value in order to stop outputting signals from the regulator 4.


Therefore, in view of the distinguishing features between the claimed invention and the references and in view of the changes to the claim structure to address the rejections under 35 U.S.C. §112 and in view of the indicated allowable subject matter of claims 5-19, Applicants respectfully request that this application containing claims 1-19 be allowed and be passed to issue.

If there are any questions regarding this amendment or the application in general, a telephone call to the undersigned would be appreciated since this should expedite the prosecution of the application for all concerned.

If necessary to effect a timely response, this paper should be considered as a petition for an Extension of Time sufficient to effect a timely response, and please charge any deficiency in fees or credit any overpayments to Deposit Account No. 05-1323 (Docket #056207.52859US).

Respectfully submitted,

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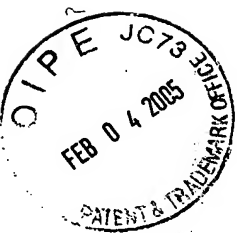
Enclosure(s): One (1) sheet of Replacement drawings (FIG. 1)
 One (1) sheet of Annotated drawings showing changes (FIG. 1)

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Amendments to the Drawings:

The attached sheet of drawings includes changes to Fig. 1.

Attachment: Replacement Sheet
Annotated Sheet Showing Changes



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FIG. 1

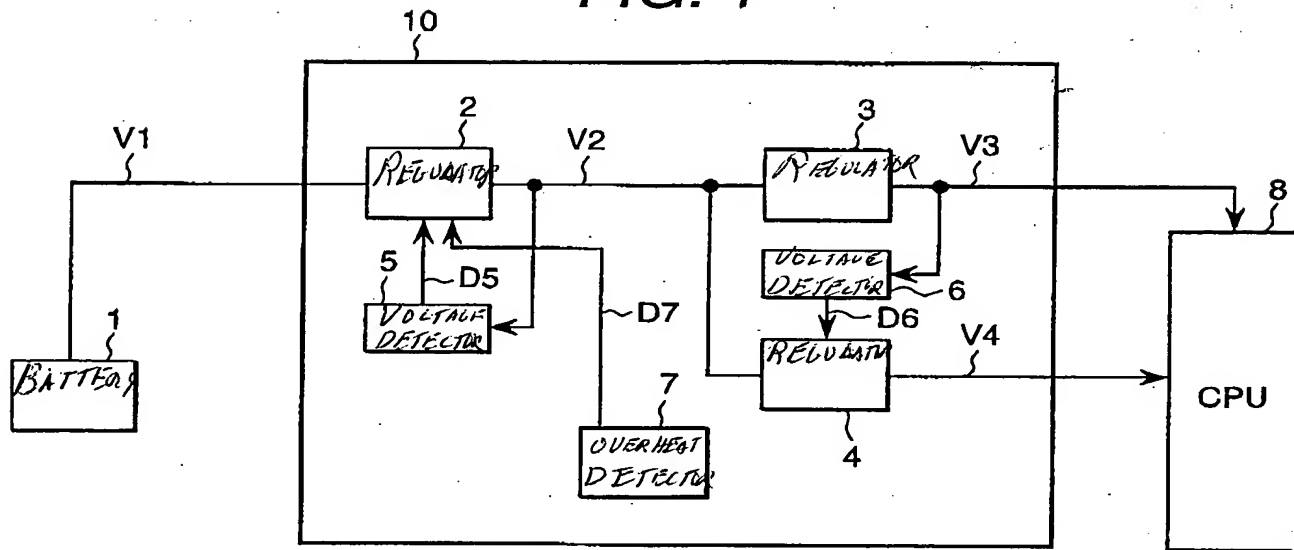


FIG. 3

